United States Patent

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[54] **CARBURETOR PACKAGE**
15 Claims, 8 Drawing Figs.

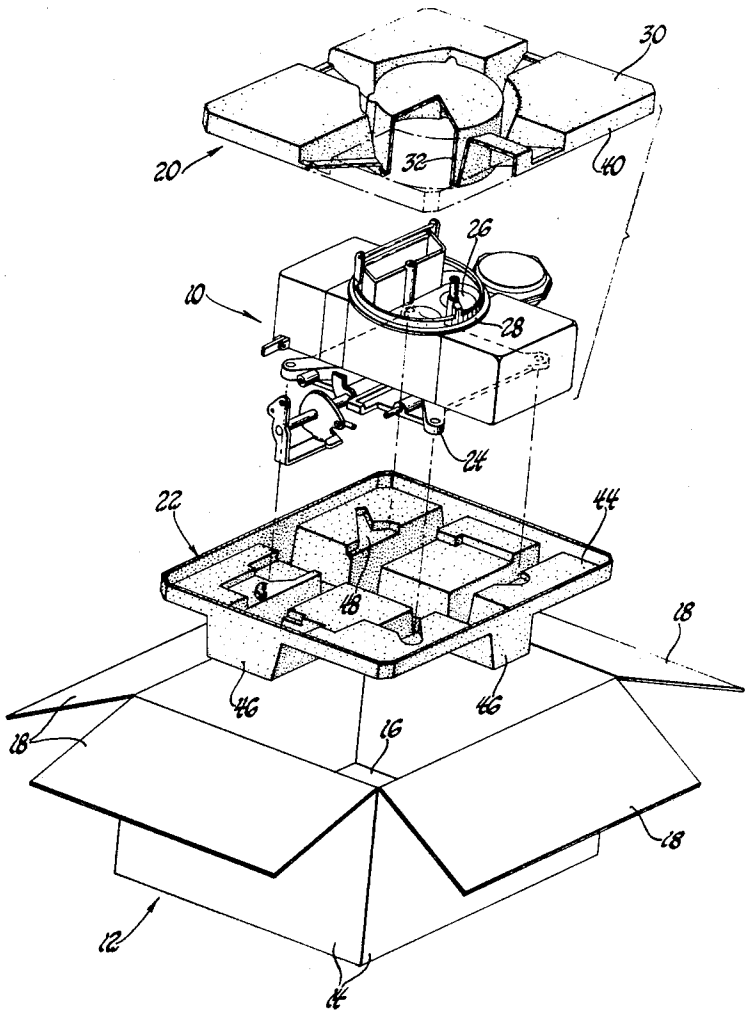
[52] **U.S. Cl.** **229/14,**
206/46, 217/26.5
[51] **Int. Cl.** **B65d 5/58,**
B65d 81/06, B65d 85/30
[50] **Field of Search** ..... 229/14 (C),
2.5; 206/46 (Fragile); 217/26.5

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ABSTRACT: A packaging assembly for carburetors including a cardboard container, a preformed plastic bottom insert to receive and support the carburetor relative to the container and a preformed plastic top insert having a deep annular depression terminating in an annular surface which engages the carburetor air cleaner seat to seal the carburetor and restrain it within the container.



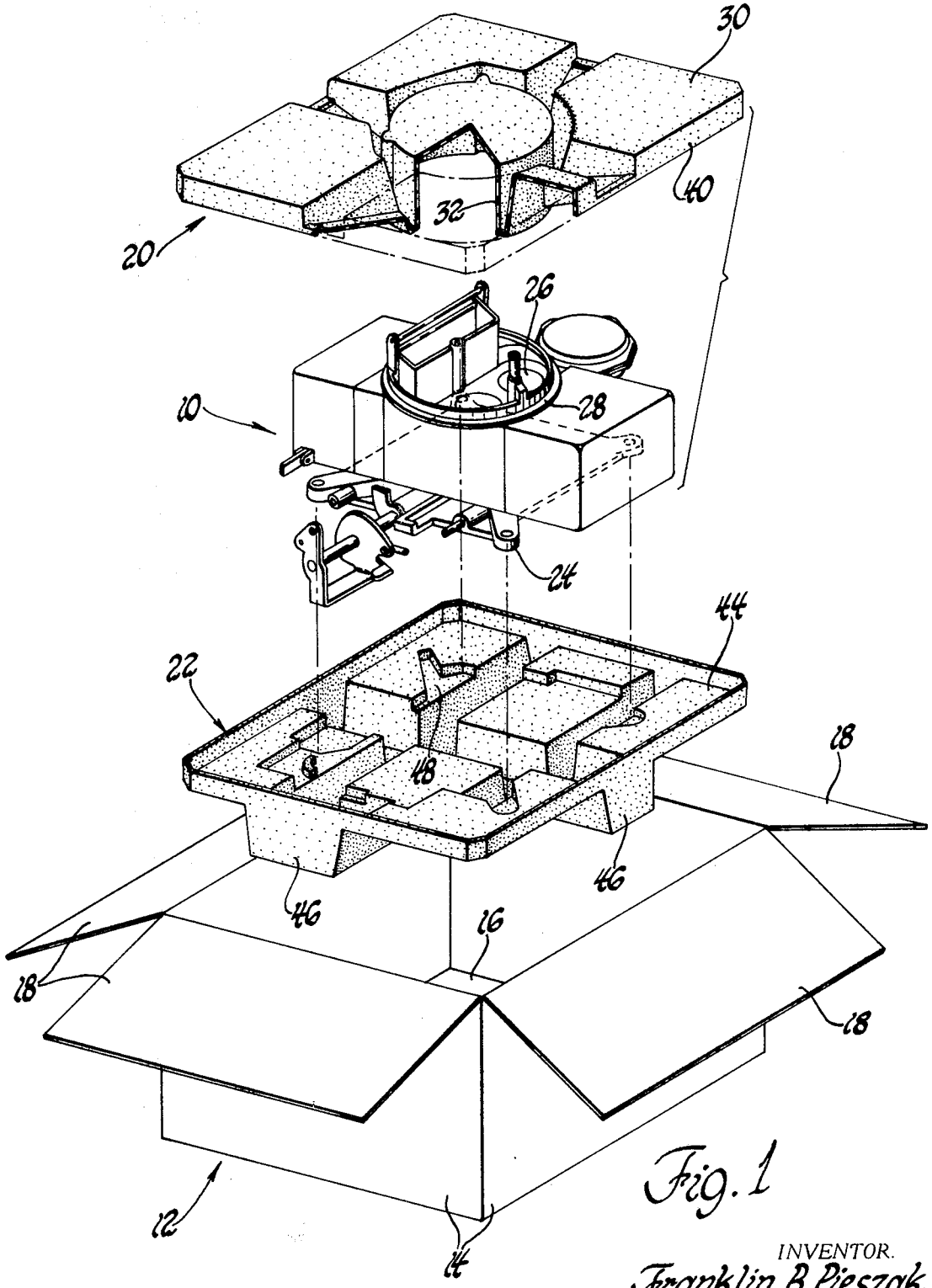


Fig. 1

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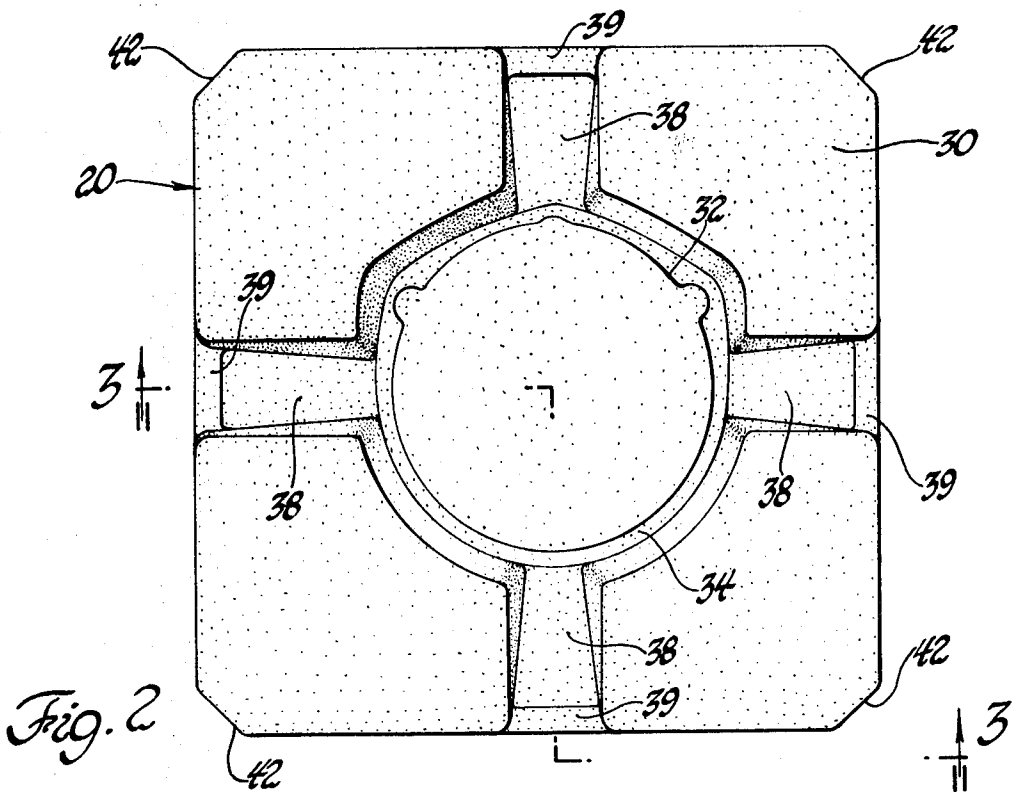


Fig. 2

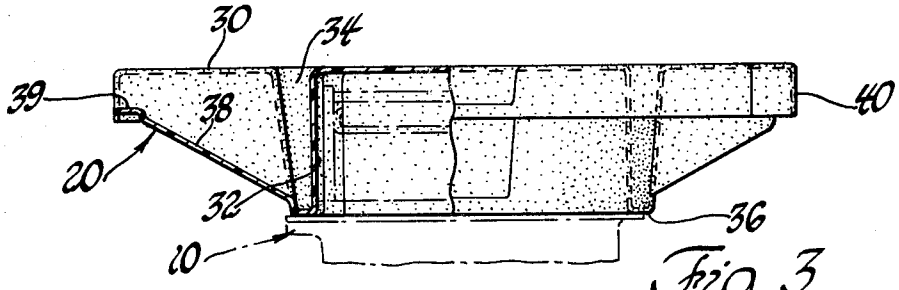


Fig. 3

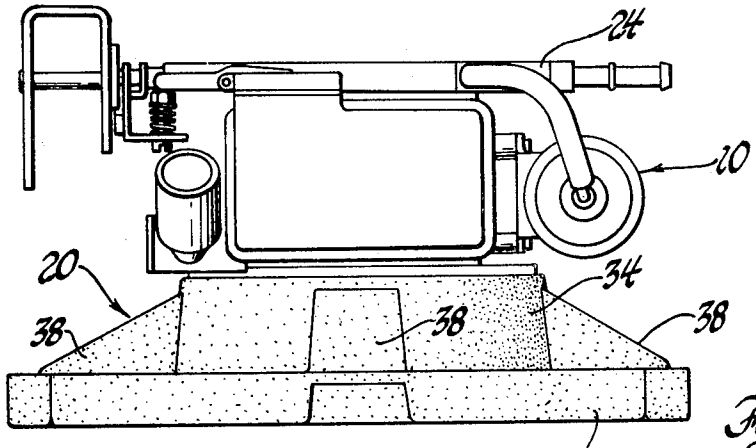


Fig. 4

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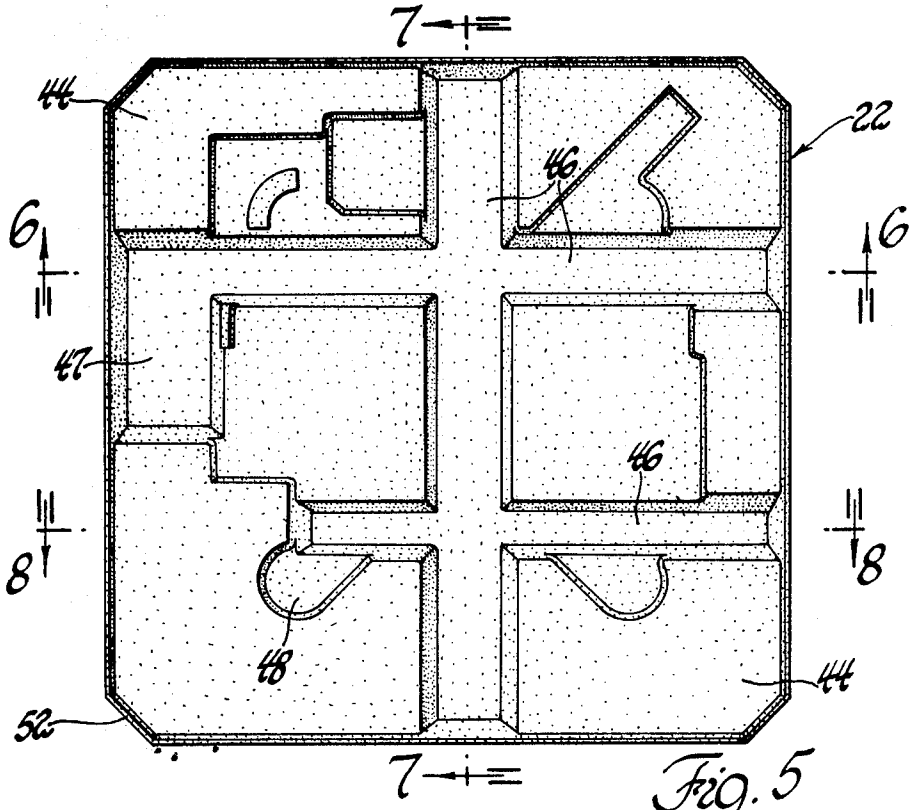


Fig. 5

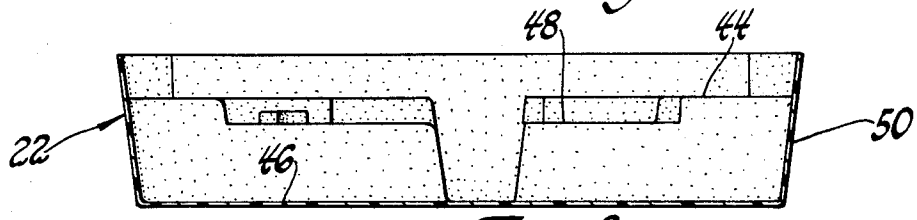


Fig. 6

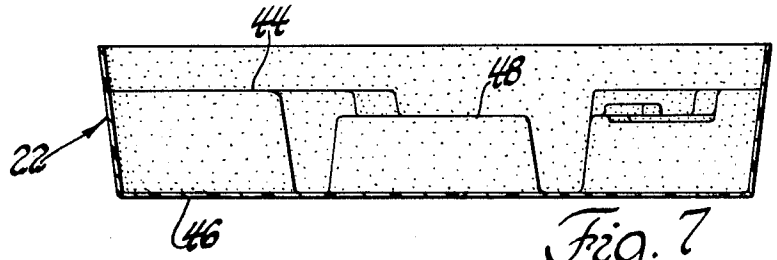


Fig. 7

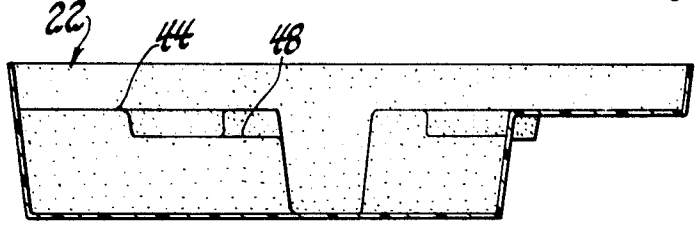


Fig. 8

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CARBURETOR PACKAGE

This invention relates to a carburetor shipping and storage container assembly including a container and preformed insert members for restraining movement of the carburetor within the container, isolating the carburetor against shock damage, and sealing the carburetor against the ingestion of foreign particles.

Delicate and complex articles, such as carburetors, are normally shipped and stored in corrugated cardboard containers. It is highly desirable to restrain the carburetor against movement within the container and to support the carburetor in spaced relation with the container to prevent the transfer of potentially damaging shock forces through the container to the carburetor. In addition, it is desirable to seal the carburetor to prevent the ingestion of foreign particles into the delicate mechanisms within the carburetor body. The conventional packaging technique for accomplishing these objectives includes a plurality of platform and wedge-type inserts for supporting the carburetor relative to the container walls and the use of a polyethelene bag within which the carburetor is placed prior to insertion into the container. This technique is time and labor consuming in that it requires careful assembly of the various inserts, placing the carburetor in the polyethelene bag prior to insertion into the container and also the removal of the carburetor from the polyethelene bag prior to the performance of any operations on the carburetor at the receiving point. In addition, the polyethelene bag must be disposed of at the receiving point.

In accordance with the present invention, a container insert member is provided for performing the functions of restraining and supporting a device such as a carburetor relative to a container and also sealing the carburetor against the ingestion of foreign particles. In general, this is accomplished through the use of at least one preformed container insert member which is adapted for placement between the carburetor and the container and includes a generally planar portion which is adapted for engagement with a container surface and a generally cylindrical portion which extends away from the planar portion and terminates in an annular surface which is adapted to engage the annular seat for the carburetor air cleaner. Accordingly, when disposed within the container between the carburetor and the container interior, as described above, the insert member restrains movement of the carburetor relative to the container and seals the carburetor throat against the ingestion of foreign particles.

In a specific form of the invention, a carburetor packaging assembly includes a container, such as a corrugated cardboard box, a first insert member of performed material, such as plastic, for receiving the carburetor base and supporting the base relative to the container floor, and a top insert member having formed therein a deep annular depression terminating in an annular surface which is adapted to engage the annular carburetor air cleaner seat, the entire assembly being dimensioned such that the insert members extend between the interior sidewalls of the container and semirigidly support and suspend the carburetor between all of the interior surfaces of the container.

In a preferred form of the invention, the top insert member is provided with a shallow peripheral wall such that the insert member may be disposed on a work surface in an inverted position to receive and support the carburetor in an inverted position for the performance of various operations. The shallow peripheral wall portion forms an enclosure which permits the orderly maintenance of small parts, such as screws and washers, thereby to facilitate the performance of various operations on the carburetor.

The invention may be best understood by reference to the following description of an illustrative embodiment of the invention. This description is to be taken with the accompanying drawings of which:

FIG. 1 is an exploded assembly view, in perspective, of a packaging assembly illustrating the invention;

FIG. 2 is a plan view of a top insert member;

FIG. 3 is a side view, partly in section, of the top insert member;

FIG. 4 is a side view of the top insert member inverted to receive a carburetor for bench work;

FIG. 5 is a plan view of a bottom insert member;

FIG. 6 is a side view, partly in section, of the bottom insert member;

FIG. 7 is another side view of the bottom insert member; and

FIG. 8 is another side view of the bottom insert member.

FIG. 1 illustrates a packaging assembly for a carburetor **10** of conventional design. The assembly includes a corrugated cardboard container **12** having four planar sidewalls **14**, a floor **16** and a top which is formed by the four flaps **18**. The assembly further comprises a top insert member **20** constructed of preformed plastic material to exhibit a semirigid structural characteristic and a bottom insert member **22** which is also constructed of preformed plastic material. As indicated in FIG. 1, the bottom insert member **22** cooperates with carburetor base **24** to maintain the carburetor **10** in spaced relationship with the floor **16** of container **12**. Top insert member **20** is designed to be placed in the container **12** and to cooperate with the annular air cleaner seat **28** of carburetor **10** in such a fashion as to support the carburetor **10** within the container **12** and to seal the carburetor against the ingestion of foreign particles into the throat portion **26** thereof. When fully assembled the bottom insert member **22** rests on the floor **16** of carburetor **12**; the base **24** of carburetor **10** rests on the insert **22**; the top insert **20** rests on the carburetor air cleaner seat **28**; and the top flaps **18** close over and engage the plane surface **30** of top insert member **20**.

Referring to FIGS. **1—3** the top insert member **20**, which is preferably formed by well-known vacuum molding techniques from a single piece of nonflaking plastic, comprises a plane surface **30** and a cylindrical portion **32** which extends from the plane surface **30** at right angles. The cylindrical portion **32** is defined by a centrally located deep, annular depression **34** which terminates in an annular surface **36** which is generally parallel to the plane surface **30**. As best shown in FIG. **3**, the annular terminal surface **36** is dimensioned so as to rest on the annular carburetor air cleaner seat **28**. When so disposed, the cylindrical portion **32** fully encloses any superstructure which may stand above the annular seat **28** and seals the throat portion **26** of carburetor **10** against the ingestion of foreign particles therein. Sealing pressure is applied by the top flaps **18** of the container **12** against the plane surface **30** of the top insert member **20**.

Top insert member **20** also has formed therein four radially extending depressions **38**. These depressions **38** extend radially from the annular depression **34** toward the periphery of the insert member. As best shown in FIG. **3**, the depressions **38** are inclined downwardly from the periphery toward the annular surface **36** but terminate at the depression **34** at a point which is spaced vertically above the annular surface **36**. The outward extremity of the depressions **38** are provided with a lip portion **39** for added strength and resilience.

The plane surface **30** of top insert member **20** is of generally tetragonal configuration in plan view so as to conform to the tetragonal plan of the container **12**. The top insert member **20** is formed with a shallow vertical side surface **40** which extends about the periphery of the member **20** so as to engage the interior surfaces of the container sidewalls **14** when placed in position over the carburetor **10**. Further, the corners of the top insert member are squared off as indicated at **42**.

The construction of the top insert member **20** shown in FIGS. **1—3** not only seals the carburetor by engagement between the annular surface **36** and the air cleaner seat **28**, but also restrains the carburetor **10** against lateral movement within the container **12** by semirigidly supporting the carburetor **10** laterally against the interior of the container sidewalls **14**. The annular depression **34** provides a substantial spring effect or shock isolation effect in the lateral direction between the carburetor **10** and the interior surfaces of sidewalls **14**. The radial depressions **38** lend radial strength to the insert member **20** to prevent buckling in the event of a lateral impact to the container **12**. In addition, the squared-off corners **42**

permit the corners of the container 12 to "give" upon impact with a hard surface and thereby soften any shock force which might otherwise be more directly transmitted to the carburetor 10. Finally, the carburetor is isolated against shock transmitted through the container 12 in the vertical direction by virtue of the spacing between the plane surface 30 and the uppermost portion of the carburetor 10 and also by means of the slightly inclined nature of the annular depression 34 which is best illustrated in FIG. 3.

Referring to FIG. 4, a secondary function of the top insert member 22 is illustrated. Either before placing carburetor 10 in container 12 or after removing the carburetor from the container, it may be necessary or desirable to perform certain work operations on the carburetor. To facilitate these operations, the top insert member 20 may be removed from the container 12 and placed in an inverted orientation on a work surface (not shown). The carburetor 10 may then be placed on top of the insert member 20 in the inverted position, shown in FIG. 4, such that the air cleaner seat 28 rests directly upon the annular terminal surface 36. In this condition, the carburetor 10 is supported in spaced relationship with the work surface, is elevated and fully exposed for the performance for various work operations. In addition, the combination of the shallow vertical sidewalls 40 and the separating radial depressions 38 define convenient receptacles, or bins, for the temporary storage of various parts such as nuts, bolts, and washers during the performance of the work operation.

Referring now to FIGS. 1, 5, 6, 7 and 8, the bottom insert member 22 will be described in detail. The bottom insert member 22 comprises a table portion 44 having formed therein a plurality of vertical depressions 46 which define perpendicularly intersecting legs. These legs rest on the floor 16 of container 12 and maintain the table portion 44 in parallel and spaced relationship with the floor 16. In addition, the table portion 44 has formed therein a comparatively shallow depression 48 which is of a configuration corresponding to the general configuration of the carburetor base 24. Accordingly, the base 24 is adapted to rest within the depression 48 to be restrained against lateral displacement relative to the bottom insert 22. As best shown in FIG. 5, a plurality of additional depressions 47 of various configurations may be formed in the insert member 22 to accommodate various portions of the carburetor 10 which may extend laterally from the body or vertically relative to the base portion 24. Each bottom insert member 22 will be designed in accordance with the particular configuration of the base portion 24 of the carburetor 10 to be shipped and stored.

Bottom insert member 22, like top insert member 20, is of tetragonal configuration and is provided with side surfaces 50 which snugly engage the interior surfaces of the container sidewalls 14 when placed in the container 12. The corners of the sidewalls are squared off, as shown at 52, to prevent the direct transfer of shock forces through the corners of container 12 to the carburetor 10, in the same manner as described with reference to the top insert member 20. The bottom insert member 22 is also preferably formed by known vacuum holding techniques of a single sheet of nonflaking plastic material.

In use, the semirigid bottom insert member 22 is placed within the container 12 such that the leg portions 46 engage the floor 16 and the side surfaces 50 engage snugly the interior surfaces of the container sidewalls 14. Carburetor 10 is then placed in position such that the base 24 rests within the shallow depression 48 of the table portion 44. The top insert member 20 is then placed in position such that the annular surface 36 engages the air cleaner seat 28 of carburetor 10, and the side surfaces 40 engage the interior surfaces of sidewalls 14. So placed, the planar surface 30 is flush with the top of container 12. Flaps 18 are then closed and secured, preferably by tape, such that the container top firmly engages the plane surface 30 of the top insert member 20. Carburetor 10 is thus supportingly suspended within the container 12 in spaced relationship with all of the inside surfaces thereof and semiresiliently supported in such a fashion to be isolated from shock forces which might be transmitted through the container 12. Complete triaxial support is accomplished through the use of only two insert members and in addition the delicate mechanisms in the body 26 of carburetor 10 are sealed by the cylindrical portion 32 against the ingestion of foreign particles which might otherwise clog or damage the interior portions of carburetor 10.

It will be apparent to those skilled in the art that the top and bottom insert members 20 and 22 may be used in combination with a standard container. As a rule, the entire assembly comprising the container 12 and the top and bottom insert members 20 and 22 will be designed to receive a carburetor of given dimensions and geometric configuration as a unit.

It will be understood that various modifications may be made to the illustrated embodiments of the invention and, therefore, the foregoing description is not to be construed in a limiting sense.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

We claim:

1. A packaging assembly for carburetors of the type having a body, a lower base portion and an upper annular air cleaner seat, the assembly comprising: a container having a floor, sidewalls and a top for receiving and enclosing a carburetor, a semirigid bottom insert member for maintaining the carburetor in spaced relation to the container floor, and a semirigid top insert member having a plane surface extending between and in engaging relationship with the interior sidewalls of the container to prevent lateral displacement therebetween, and a cylindrical portion extending from the plane surface and terminating in an annular surface corresponding dimensionally with and adapted to engage the air cleaner seat, the cylindrical portion being of such depth as to maintain the plane surface engagingly adjacent the top of the container when the annular surface of the top member engages the annular air cleaner seat thereby to support, seal and restrain the carburetor within the container.

2. A packaging assembly as defined in claim 1 wherein the top insert member includes a deep annular depression in the plane surface thereof to define the cylindrical portion.

3. A packaging assembly as defined in claim 2 wherein the top insert member includes a plurality of depressions formed in the plane surface and extending radially from the annular depression toward the periphery of the insert member.

4. A packaging assembly as defined in claim 3 wherein each of the plurality of radial depressions includes an inclined lower surface extending between a point adjacent but vertically spaced from the annular surface of the cylindrical portion and the periphery of the insert member.

5. A packaging assembly as defined in claim 4 wherein the top insert member is formed of a single piece of plastic material.

6. A packaging assembly as defined in claim 1 wherein the bottom insert member has a table portion extending between and in engaging relationship with the interior sidewalls of the container to prevent lateral displacement therebetween, leg portions engaging the floor of the container for maintaining the table portion in spaced relation thereto, and means formed in the table portion for receiving and laterally restraining the base portion of the carburetor.

7. In a packaging assembly for carburetors of the type having a body terminating at the upper extremity in an annular seat for receiving an air cleaner: a container having at least one flat inner surface, a semirigid preformed insert member adapted for placement between a carburetor and the flat surface of the container including a generally planar portion having a deep annular depression formed therein to define a cylindrical portion terminating in an annular surface parallel to said planar portion, the areas of said planar portion both within and surrounding the annular depression being coplanar and lying adjacent the flat inner surface, the annular surface being dimensioned to correspond to and engage with the an-

nular carburetor seat thereby to seal the carburetor against the ingestion of foreign particles and to maintain the carburetor in a substantially fixed position relative to the container.

8. In a packaging assembly, the apparatus defined in claim 7 wherein the insert member includes a plurality of radial depressions formed therein and extending between the annular depression and the periphery of the member.

9. In a packaging assembly, the apparatus as defined in claim 8 wherein the planar portion is of tetragonal configuration having a shallow continuous side surface extending therearound for engaging the interior sidewalls of the container.

10. In a packaging assembly, the apparatus defined in claim 9 wherein the corners of the planar portion are squared off.

11. A container assembly for a carburetor of the type having a body and a throat terminating at the upper extremity in an annular seat for receiving an air filter, the assembly comprising: a container having a top and a bottom joined by sidewalls, a first insert of performed semirigid material disposed on the bottom of the container and having a floor, sidewalls, and legs to raise the floor from the container bottom, the first insert having depressions formed therein to receive the carburetor body in substantially conforming relationship to limit lateral movement thereof, a second insert of preformed semirigid material adapted to be disposed between the carburetor and the top of the container, the second insert including a

generally planar surface portion having a deep annular depression formed therein to define a central cylindrical portion the lowermost surface of the central depression being adapted to rest on the annular seat when the top of the container is closed thereby to secure the carburetor between the first and second inserts and to seal the carburetor throat against the ingestion of foreign particles, to isolate the carburetor from shock transmitted through the top of the container and also to limit lateral movement of the carburetor within the container.

12. A container assembly as defined in claim 11 wherein the second insert member has formed therein a plurality of radial depressions extending between the annular depression and the periphery of the member.

13. A container assembly as defined in claim 12 wherein the second insert member includes a shallow side surface about the periphery thereof.

14. A container assembly as defined in claim 13 wherein the container and the first and second inserts are of tegragonal configurations, the corners of the inserts being squared off to provide a spacing between the insert members and each of the corners of the container.

15. A container assembly as defined in claim 14 wherein each of the insert members is formed of a single piece of plastic.